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Date: AUGUST 23, 2004

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U.S. PATENT AND TRADEMARK OFFICE

Fax #: (703) 872-9319

From: FRANK C. NICHOLAS
Phone #: (847) 424-2521

Client/Matter No.: DE000234 (7790/280)

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From: FRANK C. NICHOLAS
Phone #: (847) 424-2321
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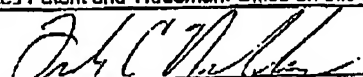
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	Application Number	10/023.168
	Filing Date	DECEMBER 18, 2001
	First Named Inventor	RULF DORSCHIED
	Group Art Unit	2859
	Examiner	REIS, TRAVIS M

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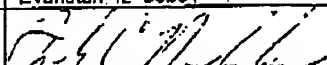
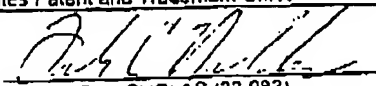
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PATENT
Case No. DE000234
(7790/280)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re patent application of:

RULF DORSCHIED ET AL.

Serial No.: 10/023,168

Filed: DECEMBER 18, 2001

For: DETECTOR FOR THE
DETECTION OF
ELECTROMAGNETIC
RADIATION

Examiner: REIS, TRAVIS M.

Group Art Unit: 2859

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Appellant herewith respectfully presents its Brief on Appeal as follows:

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1. REAL PARTY IN INTEREST

The real party in interest is the assignee, Koninklijke Philips Electronics N.V., a corporation of the Netherlands.

2. RELATED APPEALS AND INTERFERENCES

Appellant and the undersigned attorney are not aware of any other appeals or interferences which will directly affect or be directly affected by or having a bearing on the Board's decision in the pending appeal.

3. STATUS OF CLAIMS

Claims 1-8 and 12-16 are currently pending in the application and are the claims on appeal. See, the Appendix. Claims 1-4, 6-8 and 12-16 stand finally rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,292,528 to *Wieczorek*, et al. in view of U.S. Patent No. 6,420,213 to *Nakajyo* et al.

Claims 9-11 have been withdrawn from consideration.

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4. STATUS OF AMENDMENTS

A reply to a Non-Final Office Action dated 5/12/03 involving an addition of claims 13-16 and remarks supporting an allowance of claims 1-8 and 12-16 over *Wieczorek* in view of *Nakajyo* was filed by the Appellant on 9/15/03, and entered into the present application by Examiner Reis. A reply to a 1st Final Office Action dated 11/28/03 involving remarks supporting an allowance of claims 1-8 and 12-16 over *Wieczorek* in view of *Nakajyo* was filed by the Appellant on 01/28/04, and entered into the present application by Examiner Reis. A reply to a 2nd Final Office Action dated 03/19/04 involving remarks supporting an allowance of claims 1-8 and 12-16 over *Wieczorek* in view of *Nakajyo* was filed by the Appellant on 05/10/04, but was deemed by Examiner Reis as not placing the present application in condition for allowance.

5. SUMMARY OF THE INVENTION

As illustrated in FIG. 1, the present application provides a detector (1) having ceramic basic element (4) (e.g., aluminum oxide) and a CMOS chip (3) with an intermediate layer (2) between ceramic basis element (4) and CMOS chip (3). Intermediate layer (2) includes spacers (5) (e.g., wire) in contact with ceramic basic element (4) and CMOS chip (3), and a pair of adhesives (A1) (e.g., a fast curing epoxy resin) and (B) (e.g., a low-viscosity adhesive) adhered to ceramic basic element (4) and CMOS chip (3). See, U.S. Patent Application Serial No. 10/023,168 on page 4, line 26 to page 5, line 22.

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As illustrated in FIG. 2, detector (1) further has a scintillator (6) with an intermediate layer between CMOS chip (3) and scintillator (6). This intermediate layer includes spacers (5) in contact with CMOS chip (3), an adhesive (A2) (e.g., a fast curing epoxy resin) adhered to a spacer (5) and scintillator (6), and adhesive (B) adhered to CMOS chip (3), scintillator (6), spacer (5) and adhesive (A2). See, *U.S. Patent Application Serial No. 10/023,168* on page 5, line 23 to page 6, line 20.

6. ISSUE

Whether claims 1-8 and 12-16 are allowable over *Wieczorek* in view of *Nakajyo*.

7. GROUPING OF CLAIMS

Claims 1-8 and 12-16 should be considered in two (2) groups.

Claim group I includes claims 1-8, 12, 15 and 16, which are directed to a detector as illustrated in FIGS. 1 and 2 of the present application.

Claim group II includes claims 13 and 14, which are directed solely to a solely to a part of a detector as illustrated in FIG. 1 of the present application.

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8. ARGUMENTS

The Appellant respectfully traverse the obviousness rejection of claims 1-4, 6-8 and 12-16 as being unpatentable over *Wieczorek* in view of *Nakajyo*, because Examiner Reis has failed to establish a *prima facie* case of obviousness as required by MPEP §2143. Specifically, Examiner Reis has failed to cite a suggestion or a motivation, in *Wieczorek* and *Nakajyo* to modify *Wieczorek* in view of *Nakajyo* to obtain the claimed invention as recited in independent claims 1 and 13.

Specifically, independent claim 1 recites "wherein said intermediate layer (2) contains at least two adhesives (A, B) of different consistency and spacers (5)", and independent claim 13 recites "said first intermediate layer (2) including a first spacer (5) in contact with said ceramic basic element (4) and said CMOS chip (3), a first adhesive (A1) adhered to said ceramic basic element (4) and said CMOS chip (3), and a second adhesive (B) adhered to said ceramic basic element (4) and said CMOS chip (3)". Examiner Reis correctly recognizes that *Wieczorek* teaches each limitation of claims 1 and 13 except for the aforementioned limitation of claims 1 and 13, and that *Nakajyo* discloses the aforementioned limitation of claims 1 and 13. Examiner Reis therefore asserts that it would have been obvious to one of ordinary skill in the art at the time the invention was made to add adhesives 5 and 7 and stub bumps 2 as illustrated in FIG. 2 of *Nakajyo* to adhesive layers 13 and 16 as illustrated in FIG. 2 of *Wieczorek* with the

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expectation of minimizing a stretch between electrical leads between a CMOS chip 9 and bond pads 17 on printed circuit board 15 as illustrated in FIG. 2 of *Wieczorek* by having electrically conduct material directly between the leads.

Again, the Appellant traverses this assertion by Examiner Reis, because the mere fact that *Wieczorek* can be modified in view of *Nakajyo* to obtain the claimed invention as recited in independent claims 1 and 13 does not render the resultant modification obvious unless the prior art also suggests the desirability of the combination. See, *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (Claims were directed to an apparatus for producing an aerated cementitious composition by drawing air into the cementitious composition by driving the output pump at a capacity greater than the feed rate. The prior art reference taught that the feed means can be run at a variable speed, however the court found that this does not require that the output pump be run at the claimed speed so that air is drawn into the mixing chamber and is entrained in the ingredients during operation. Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." 916 F.2d at 682, 16 USPQ2d at 1432.). See also *In re Frisch*, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992) (flexible landscape edging device which is conformable to a ground surface of varying slope not suggested by combination of prior art references).

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The basis for Examiner Reis' assertion is that *Nakajyo* suggests the desirability of the combination by offering adhesives 5 and 7 and stud bumpers 2 that can be placed between scintillator 11 (FIG. 1) and CMOS chip 9 (FIG. 1) of *Wieczorek* and between CMOS chip 9 and printed circuit board 15 (FIG. 1) of *Wieczorek* with the expectation of minimizing a stretch between electrical leads between CMOS chip 9 and bond pad 17 on printed circuit board 15. However, Examiner Reis CAN NOT conclusively assert that an implementation of the adhesives 5 and 7 and stud bumpers 2 of *Nakajyo* between CMOS chip 9 and bond pad 17 on printed circuit board 15 of *Wieczorek* would be expected to minimize a stretch between electrical leads between CMOS chip 9 and bond pad 17 on printed circuit board 15 of *Wieczorek*. This is particularly true in view of the fact that neither *Wieczorek* nor *Nakajyo* describe an absolute minimum stretch and/or an absolute maximum stretch of the electrical leads between CMOS chip 9 and bond pad 17 on printed circuit board 15 that are conducive to reducing noise and susceptibility of interference as required by *Wieczorek*. See, *Wieczorek* at column 2, line 43-54; and column 5, lines 13-16.

Moreover, the Appellant respectfully asserts that there is no motivation or suggestion to replace adhesive layers 13 and 16 with the adhesives and spacers of *Nakajyo* in view of the facts that (1) *Wieczorek* does not denounce adhesive layers 13 and 16 as being a less than perfect technique for bonding CMOS chip 9 and printed circuit board 15 with the goal of minimizing the stretch of electrical leads between CMOS ship 9 and bond pads 17, and (2) *Nakajyo* does not

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proclaim adhesives 5 and 7 and stud bumps 2 as the best technique for bonding elements (e.g., CMOS chip 9 and printed circuit board 15) with the goal of minimizing the stretch of electrical leads between the elements.

In summary, Examiner Reis fails to provide a suggestion or a motivation to modify *Wieczorek* in view of *Nakajyo* as proposed by Examiner Reis, and *Wieczorek* teaches away from the modification of *Wieczorek* in view of *Nakajyo* as proposed by Examiner Reis. Withdrawal of the rejection of independent claims 1 and 13 under §103(a) as being unpatentable over *Wieczorek*, in view of *Nakajyo* is therefore respectfully requested.

Claims 2-4, 6-8 and 12 depend from independent claim 1. Therefore, dependent claims 2-4, 6-8 and 12 include all of the elements and limitations of independent claim 1. It is therefore respectfully submitted by the Appellant that dependent claims 2-4, 6-8 and 12 are allowable over *Wieczorek*, in view of *Nakajyo* for at least the same reason as set forth herein with respect to independent claim 1 being allowable over *Wieczorek*, in view of *Nakajyo*. Withdrawal of the rejection of dependent claims 2-4, 6-8 and 12 under U.S.C. §103(a) as being patentable over *Wieczorek*, in view of *Nakajyo* is therefore respectfully requested.

Claim 5 depends from independent claim 1. Therefore, dependent claim 5 includes all of the elements and limitations of independent claim 1. It is therefore respectfully submitted by the Appellant that dependent claim 5 is allowable over *Wieczorek*, in view of *Nakajyo* and in further view of *Doyle* for at least the same reason as set forth herein with respect to independent claim 1

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being allowable over *Wieczorek*, in view of *Nakajyo*. Withdrawal of the rejection of dependent claim 5 under U.S.C. §103(a) as being patentable over *Wieczorek*, in view of *Nakajyo* and in further view of *Doyle* is therefore respectfully requested.

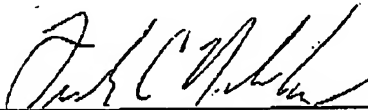
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Respectfully submitted,
RULF DORSCHIED, *et al.*

PHILIPS IP & STANDARDS
P.O. Box 3001
Briarcliff Manor, NY 10510-8001
Phone: (914) 333-9627
Fax: (914) 332-0615

John F. Vodopia
Registration No. 36,299
Attorney for Appellants

CARDINAL LAW GROUP
Suite 2000
1603 Orrington Avenue
Evanston, Illinois 60201
Phone: (847) 905-7111
Fax: (847) 905-7113



Frank C. Nicholas
Registration No. 33,983
Attorney for Appellant

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APPENDIX

1. A detector for a detection of electromagnetic radiation, said detector comprising:
at least one scintillator (6);
at least one CMOS chip (3); and
a ceramic basic element (4),
wherein a respective intermediate layer (2) that is defined in respect of its gap width is arranged each time between the scintillator (6) and the CMOS chip (3) and between the CMOS chip (3) and the ceramic basic element (4), and
wherein said intermediate layer (2) contains at least two adhesives (A, B) of different consistency and spacers (5).
2. The detector as claimed in claim 1, wherein the gap width of the intermediate layer (2) is determined by quantities of the adhesive (A) and a plurality of spacers (5).
3. The detector as claimed in the claims 1 and 2, wherein a first adhesive (A) is a fast curing epoxy resin, cyanoacrylate or acrylate adhesive.
4. The detector as claimed in claim 3, wherein at least some quantities of the first adhesive (A1) are applied directly to the surfaces of the CMOS chip (3) and the ceramic basic element (4) and that a plurality of spacers (5) is arranged between the surfaces of the CMOS chip (3) and the ceramic basic element (4).

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5. The detector as claimed in claim 4, wherein each spacer (5) is a wire that consists notably of the materials Au and AlSi.
6. The detector as claimed in claim 3, wherein at least some quantities of a second adhesive (A2) are applied to the surface of the scintillator (6) that faces the CMOS chip as well as to a plurality of bumps that are present on the CMOS chip (3).
7. The detector as claimed in claim 1, wherein a first adhesive (B) is a low-viscosity adhesive, notably on an epoxy resin basis.
8. The detector as claimed in claim 1, wherein the ceramic basic element (4) is based on aluminum oxide.
12. An X-ray examination apparatus that includes at least one detector as claimed in one of the claims 1 to 8.

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13. A detector for detecting electromagnetic radiation, said detector comprising:
- a ceramic basic element (4);
 - a CMOS chip (3); and
 - a first intermediate layer (2) between said ceramic basis element (4) and said CMOS chip (3), said first intermediate layer (2) including
 - a first spacer (5) in contact with said ceramic basic element (4) and said CMOS chip (3),
 - a first adhesive (A1) adhered to said ceramic basic element (4) and said CMOS chip (3), and
 - a second adhesive (B) adhered to said ceramic basic element (4) and said CMOS chip (3).
- 14 The detector of claim 13,
- wherein said second adhesive (B) is between and adhered to said first spacer (5) and said first adhesive (A1).

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- 15 The detector for detecting electromagnetic radiation of claim 13, further comprising:
a scintillator (6); and
a second intermediate layer between said CMOS chip (3) and said scintillator (6), said
second intermediate layer including
a second spacer (5) in contact with said CMOS chip (3),
a third adhesive (A2) adhered to said second spacer (5) and said scintillator (6),
and
a fourth adhesive (B) adhered to said CMOS chip (3), said scintillator (6), said
second spacer (5) and said third adhesive (A2).
16. The detector of claim 15,
wherein said second intermediate layer further includes a third spacer (5) in contact with
said CMOS chip (3); and
wherein said fourth adhesive (B) is between and adhered to said scintillator (6) and said
third spacer (5).

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Name of Appellant, assignee, or registered representative

Frank C. Nicholas
SignatureAugust 23, 2004

Date of Signature

PATENT
Case No. DE000234
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re patent application of:

RULF DORSCHIED ET AL.

Serial No.: 10/023,168

Filed: DECEMBER 18, 2001

For: DETECTOR FOR THE
DETECTION OF
ELECTROMAGNETIC
RADIATION

Examiner: REIS, TRAVIS M.

Group Art Unit: 2859

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Appellant herewith respectfully presents its Brief on Appeal as follows:

August 23, 2004
Case No DE000234 (7790/280)
Serial No.: 10/023,168
Filed: December 18, 2001
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1. REAL PARTY IN INTEREST

The real party in interest is the assignee, Koninklijke Philips Electronics N V , a corporation of the Netherlands.

2. RELATED APPEALS AND INTERFERENCES

Appellant and the undersigned attorney are not aware of any other appeals or interferences which will directly affect or be directly affected by or having a bearing on the Board's decision in the pending appeal

3 STATUS OF CLAIMS

Claims 1-8 and 12-16 are currently pending in the application and are the claims on appeal. See, the Appendix. Claims 1-4, 6-8 and 12-16 stand finally rejected under 35 U.S.C. §103(a) as being unpatentable over U S Patent No. 6,292,528 to *Wieczorek*. et al. in view of U.S. Patent No. 6,420,213 to *Nakajyo* et al.

Claims 9-11 have been withdrawn from consideration.

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4. STATUS OF AMENDMENTS

A reply to a Non-Final Office Action dated 5/12/03 involving an addition of claims 13-16 and remarks supporting an allowance of claims 1-8 and 12-16 over *Wieczorek* in view of *Nakajyo* was filed by the Appellant on 9/15/03, and entered into the present application by Examiner Reis. A reply to a 1st Final Office Action dated 11/28/03 involving remarks supporting an allowance of claims 1-8 and 12-16 over *Wieczorek* in view of *Nakajyo* was filed by the Appellant on 01/28/04, and entered into the present application by Examiner Reis. A reply to a 2nd Final Office Action dated 03/19/04 involving remarks supporting an allowance of claims 1-8 and 12-16 over *Wieczorek* in view of *Nakajyo* was filed by the Appellant on 05/10/04, but was deemed by Examiner Reis as not placing the present application in condition for allowance.

5 SUMMARY OF THE INVENTION

As illustrated in FIG. 1, the present application provides a detector (1) having ceramic basic element (4) (e.g., aluminum oxide) and a CMOS chip (3) with an intermediate layer (2) between ceramic basis element (4) and CMOS chip (3). Intermediate layer (2) includes spacers (5) (e.g., wire) in contact with ceramic basic element (4) and CMOS chip (3), and a pair of adhesives (A1) (e.g., a fast curing epoxy resin) and (B) (e.g., a low-viscosity adhesive) adhered to ceramic basic element (4) and CMOS chip (3). See, U.S. Patent Application Serial No 10/023,168 on page 4, line 26 to page 5, line 22.

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As illustrated in FIG 2, detector (1) further has a scintillator (6) with an intermediate layer between CMOS chip (3) and scintillator (6). This intermediate layer includes spacers (5) in contact with CMOS chip (3), an adhesive (A2) (e g., a fast curing epoxy resin) adhered to a spacer (5) and scintillator (6), and adhesive (B) adhered to CMOS chip (3), scintillator (6), spacer (5) and adhesive (A2). See, U.S. Patent Application Serial No. 10/023,168 on page 5, line 23 to page 6, line 20.

6. ISSUE

Whether claims 1-8 and 12-16 are allowable over *Wieczorek* in view of *Nakajyo*.

7. GROUPING OF CLAIMS

Claims 1-8 and 12-16 should be considered in two (2) groups.

Claim group I includes claims 1-8, 12, 15 and 16, which are directed to a detector as illustrated in FIGS. 1 and 2 of the present application.

Claim group II includes claims 13 and 14, which are directed solely to a solely to a part of a detector as illustrated in FIG 1 of the present application.

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8. ARGUMENTS

The Appellant respectfully traverse the obviousness rejection of claims 1-4, 6-8 and 12-16 as being unpatentable over *Wieczorek* in view of *Nakajyo*, because Examiner Reis has failed to establish a *prima facie* case of obviousness as required by MPEP §2143. Specifically, Examiner Reis has failed to cite a suggestion or a motivation, in *Wieczorek* and *Nakajyo* to modify *Wieczorek* in view of *Nakajyo* to obtain the claimed invention as recited in independent claims 1 and 13.

Specifically, independent claim 1 recites "wherein said intermediate layer (2) contains at least two adhesives (A, B) of different consistency and spacers (5)", and independent claim 13 recites "said first intermediate layer (2) including a first spacer (5) in contact with said ceramic basic element (4) and said CMOS chip (3), a first adhesive (A1) adhered to said ceramic basic element (4) and said CMOS chip (3), and a second adhesive (B) adhered to said ceramic basic element (4) and said CMOS chip (3)". Examiner Reis correctly recognizes that *Wieczorek* reaches each limitation of claims 1 and 13 except for the aforementioned limitation of claims 1 and 13, and that *Nakajyo* discloses the aforementioned limitation of claims 1 and 13. Examiner Reis therefore asserts that it would have been obvious to one of ordinary skill in the art at the time the invention was made to add adhesives 5 and 7 and stub bumps 2 as illustrated in FIG. 2 of *Nakajyo* to adhesive layers 13 and 16 as illustrated in FIG. 2 of *Wieczorek* with the

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expectation of minimizing a stretch between electrical leads between a CMOS chip 9 and bond pads 17 on printed circuit board 15 as illustrated in FIG. 2 of *Wieczorek* by having electrically conduct material directly between the leads.

Again, the Appellant traverses this assertion by Examiner Reis, because the mere fact that *Wieczorek* can be modified in view of *Nakajyo* to obtain the claimed invention as recited in independent claims 1 and 13 does not render the resultant modification obvious unless the prior art also suggests the desirability of the combination. See, In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (Claims were directed to an apparatus for producing an aerated cementitious composition by drawing air into the cementitious composition by driving the output pump at a capacity greater than the feed rate. The prior art reference taught that the feed means can be run at a variable speed, however the court found that this does not require that the output pump be run at the claimed speed so that air is drawn into the mixing chamber and is entrained in the ingredients during operation. Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." 916 F.2d at 682, 16 USPQ2d at 1432.). See also In re Fritch, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992) (flexible landscape edging device which is conformable to a ground surface of varying slope not suggested by combination of prior art references).

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The basis for Examiner Reis' assertion is that *Nakajyo* suggests the desirability of the combination by offering adhesives 5 and 7 and stud bumpers 2 that can be placed between scintillator 11 (FIG. 1) and CMOS chip 9 (FIG. 1) of *Wieczorek* and between CMOS chip 9 and printed circuit board 15 (FIG. 1) of *Wieczorek* with the expectation of minimizing a stretch between electrical leads between CMOS chip 9 and bond pad 17 on printed circuit board 15. However, Examiner Reis CAN NOT conclusively assert that an implementation of the adhesives 5 and 7 and stud bumpers 2 of *Nakajyo* between CMOS chip 9 and bond pad 17 on printed circuit board 15 of *Wieczorek* would be expected to minimize a stretch between electrical leads between CMOS chip 9 and bond pad 17 on printed circuit board 15 of *Wieczorek*. This is particularly true in view of the fact that neither *Wieczorek* nor *Nakajyo* describe an absolute minimum stretch and/or an absolute maximum stretch of the electrical leads between CMOS chip 9 and bond pad 17 on printed circuit board 15 that are conducive to reducing noise and susceptibility of interference as required by *Wieczorek*. See, *Wieczorek* at column 2, line 43-54; and column 5, lines 13-16.

Moreover, the Appellant respectfully asserts that there is no motivation or suggestion to replace adhesive layers 13 and 16 with the adhesives and spacers of *Nakajyo* in view of the facts that (1) *Wieczorek* does not denounce adhesive layers 13 and 16 as being a less than perfect technique for bonding CMOS chip 9 and printed circuit board 15 with the goal of minimizing the stretch of electrical leads between CMOS ship 9 and bond pads 17, and (2) *Nakajyo* does not

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proclaim adhesives 5 and 7 and stud bumps 2 as the best technique for bonding elements (e.g., CMOS chip 9 and printed circuit board 15) with the goal of minimizing the stretch of electrical leads between the elements.

In summary, Examiner Reis fails to provide a suggestion or a motivation to modify *Wieczorek* in view of *Nakajyo* as proposed by Examiner Reis, and *Wieczorek* teaches away from the modification of *Wieczorek* in view of *Nakajyo* as proposed by Examiner Reis. Withdrawal of the rejection of independent claims 1 and 13 under §103(a) as being unpatentable over *Wieczorek*, in view of *Nakajyo* is therefore respectfully requested

Claims 2-4, 6-8 and 12 depend from independent claim 1. Therefore, dependent claims 2-4, 6-8 and 12 include all of the elements and limitations of independent claim 1. It is therefore respectfully submitted by the Appellant that dependent claims 2-4, 6-8 and 12 are allowable over *Wieczorek*, in view of *Nakajyo* for at least the same reason as set forth herein with respect to independent claim 1 being allowable over *Wieczorek*, in view of *Nakajyo*. Withdrawal of the rejection of dependent claims 2-4, 6-8 and 12 under U.S.C. §103(a) as being patentable over *Wieczorek*, in view of *Nakajyo* is therefore respectfully requested.

Claim 5 depends from independent claim 1. Therefore, dependent claim 5 includes all of the elements and limitations of independent claim 1. It is therefore respectfully submitted by the Appellant that dependent claim 5 is allowable over *Wieczorek*, in view of *Nakajyo* and in further view of *Doyle* for at least the same reason as set forth herein with respect to independent claim 1

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being allowable over *Wieczorek*, in view of *Nakajyo*. Withdrawal of the rejection of dependent claim 5 under U.S.C. §103(a) as being patentable over *Wieczorek*, in view of *Nakajyo* and in further view of *Doyle* is therefore respectfully requested.

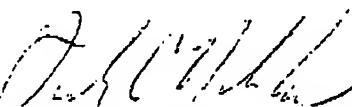
Dated: August 23, 2004

Respectfully submitted,
RULF DORSCHIED, *et al.*

PHILIPS IP & STANDARDS
P.O. Box 3001
Briarcliff Manor, NY 10510-8001
Phone: (914) 333-9627
Fax: (914) 332-0615

John F. Vodopia
Registration No. 36,299
Attorney for Appellants

CARDINAL LAW GROUP
Suite 2000
1603 Orrington Avenue
Evanston, Illinois 60201
Phone (847) 905-7111
Fax: (847) 905-7113



Frank C. Nicholas
Registration No. 33,983
Attorney for Appellant

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APPENDIX

1. A detector for a detection of electromagnetic radiation, said detector comprising:
at least one scintillator (6);
at least one CMOS chip (3); and
a ceramic basic element (4),

wherein a respective intermediate layer (2) that is defined in respect of its gap width is arranged each time between the scintillator (6) and the CMOS chip (3) and between the CMOS chip (3) and the ceramic basic element (4), and

wherein said intermediate layer (2) contains at least two adhesives (A, B) of different consistency and spacers (5).
2. The detector as claimed in claim 1, wherein the gap width of the intermediate layer (2) is determined by quantities of the adhesive (A) and a plurality of spacers (5).
3. The detector as claimed in the claims 1 and 2, wherein a first adhesive (A) is a fast curing epoxy resin, cyanoacrylate or acrylate adhesive.
4. The detector as claimed in claim 3, wherein at least some quantities of the first adhesive (A1) are applied directly to the surfaces of the CMOS chip (3) and the ceramic basic element (4) and that a plurality of spacers (5) is arranged between the surfaces of the CMOS chip (3) and the ceramic basic element (4).

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5. The detector as claimed in claim 4, wherein each spacer (5) is a wire that consists notably of the materials Au and AlSi

6. The detector as claimed in claim 3, wherein at least some quantities of a second adhesive (A2) are applied to the surface of the scintillator (6) that faces the CMOS chip as well as to a plurality of bumps that are present on the CMOS chip (3).

7. The detector as claimed in claim 1, wherein a first adhesive (B) is a low-viscosity adhesive, notably on an epoxy resin basis.

8. The detector as claimed in claim 1, wherein the ceramic basic element (4) is based on aluminum oxide

12. An X-ray examination apparatus that includes at least one detector as claimed in one of the claims 1 to 8.

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13. A detector for detecting electromagnetic radiation, said detector comprising:
- a ceramic basic element (4);
 - a CMOS chip (3); and
 - a first intermediate layer (2) between said ceramic basis element (4) and said CMOS chip (3), said first intermediate layer (2) including
 - a first spacer (5) in contact with said ceramic basic element (4) and said CMOS chip (3),
 - a first adhesive (A1) adhered to said ceramic basic element (4) and said CMOS chip (3), and
 - a second adhesive (B) adhered to said ceramic basic element (4) and said CMOS chip (3).
14. The detector of claim 13,
- wherein said second adhesive (B) is between and adhered to said first spacer (5) and said first adhesive (A1).

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15 The detector for detecting electromagnetic radiation of claim 13, further comprising:
a scintillator (6); and
a second intermediate layer between said CMOS chip (3) and said scintillator (6), said
second intermediate layer including
a second spacer (5) in contact with said CMOS chip (3),
a third adhesive (A2) adhered to said second spacer (5) and said scintillator (6),
and
a fourth adhesive (B) adhered to said CMOS chip (3), said scintillator (6), said
second spacer (5) and said third adhesive (A2).

16 The detector of claim 15,
wherein said second intermediate layer further includes a third spacer (5) in contact with
said CMOS chip (3); and
wherein said fourth adhesive (B) is between and adhered to said scintillator (6) and said
third spacer (5).

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FRANK C. NICHOLAS (33,983)
Name of Appellant, assignee, or registered representative
[Signature]
Signature
August 23, 2004
Date of Signature

PATENT
Case No. DE000234
(7790/280)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re patent application of.)	
)	
RULF DORSCHIED ET AL.)	
)	Examiner: REIS, TRAVIS M.
Serial No.: 10/023,168)	
)	Group Art Unit: 2859
Filed: DECEMBER 18, 2001)	
)	
For. DETECTOR FOR THE)	
DETECTION OF)	
ELECTROMAGNETIC)	
RADIATION)	

APPEAL BRIEF

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Appellant herewith respectfully presents its Brief on Appeal as follows:

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Claims 9-11 have been withdrawn from consideration.

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4. STATUS OF AMENDMENTS

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5. SUMMARY OF THE INVENTION

As illustrated in FIG. 1, the present application provides a detector (1) having ceramic basic element (4) (e.g., aluminum oxide) and a CMOS chip (3) with an intermediate layer (2) between ceramic basis element (4) and CMOS chip (3). Intermediate layer (2) includes spacers (5) (e.g., wire) in contact with ceramic basic element (4) and CMOS chip (3), and a pair of adhesives (A1) (e.g., a fast curing epoxy resin) and (B) (e.g., a low-viscosity adhesive) adhered to ceramic basic element (4) and CMOS chip (3). See, U.S. Patent Application Serial No. 10/023,168 on page 4, line 26 to page 5, line 22.

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As illustrated in FIG. 2, detector (1) further has a scintillator (6) with an intermediate layer between CMOS chip (3) and scintillator (6). This intermediate layer includes spacers (5) in contact with CMOS chip (3), an adhesive (A2) (e.g., a fast curing epoxy resin) adhered to a spacer (5) and scintillator (6), and adhesive (B) adhered to CMOS chip (3), scintillator (6), spacer (5) and adhesive (A2). *See, U.S. Patent Application Serial No. 10/023,168 on page 5, line 23 to page 6, line 20.*

6. ISSUE

Whether claims 1-8 and 12-16 are allowable over *Wieczorek* in view of *Nakajyo*.

7. GROUPING OF CLAIMS

Claims 1-8 and 12-16 should be considered in two (2) groups.

Claim group I includes claims 1-8, 12, 15 and 16, which are directed to a detector as illustrated in FIGS. 1 and 2 of the present application.

Claim group II includes claims 13 and 14, which are directed solely to a solely to a part of a detector as illustrated in FIG. 1 of the present application.

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8. ARGUMENTS

The Appellant respectfully traverse the obviousness rejection of claims 1-4, 6-8 and 12-16 as being unpatentable over *Wieczorek* in view of *Nakajyo*, because Examiner Reis has failed to establish a *prima facie* case of obviousness as required by MPEP §2143. Specifically, Examiner Reis has failed to cite a suggestion or a motivation, in *Wieczorek* and *Nakajyo* to modify *Wieczorek* in view of *Nakajyo* to obtain the claimed invention as recited in independent claims 1 and 13.

Specifically, independent claim 1 recites "wherein said intermediate layer (2) contains at least two adhesives (A, B) of different consistency and spacers (5)", and independent claim 13 recites "said first intermediate layer (2) including a first spacer (5) in contact with said ceramic basic element (4) and said CMOS chip (3), a first adhesive (A1) adhered to said ceramic basic element (4) and said CMOS chip (3), and a second adhesive (B) adhered to said ceramic basic element (4) and said CMOS chip (3)". Examiner Reis correctly recognizes that *Wieczorek* teaches each limitation of claims 1 and 13 except for the aforementioned limitation of claims 1 and 13, and that *Nakajyo* discloses the aforementioned limitation of claims 1 and 13. Examiner Reis therefore asserts that it would have been obvious to one of ordinary skill in the art at the time the invention was made to add adhesives 5 and 7 and stub bumps 2 as illustrated in FIG. 2 of *Nakajyo* to adhesive layers 13 and 16 as illustrated in FIG. 2 of *Wieczorek* with the

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expectation of minimizing a stretch between electrical leads between a CMOS chip 9 and bond pads 17 on printed circuit board 15 as illustrated in FIG. 2 of *Wieczorek* by having electrically conduct material directly between the leads.

Again, the Appellant traverses this assertion by Examiner Reis, because the mere fact that *Wieczorek* can be modified in view of *Nakajyo* to obtain the claimed invention as recited in independent claims 1 and 13 does not render the resultant modification obvious unless the prior art also suggests the desirability of the combination. See, *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (Claims were directed to an apparatus for producing an aerated cementitious composition by drawing air into the cementitious composition by driving the output pump at a capacity greater than the feed rate. The prior art reference taught that the feed means can be run at a variable speed, however the court found that this does not require that the output pump be run at the claimed speed so that air is drawn into the mixing chamber and is entrained in the ingredients during operation. Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." 916 F.2d at 682, 16 USPQ2d at 1432.). See also *In re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992) (flexible landscape edging device which is conformable to a ground surface of varying slope not suggested by combination of prior art references).

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The basis for Examiner Reis' assertion is that *Nakajyo* suggests the desirability of the combination by offering adhesives 5 and 7 and stud bumpers 2 that can be placed between scintillator 11 (FIG. 1) and CMOS chip 9 (FIG. 1) of *Wieczorek* and between CMOS chip 9 and printed circuit board 15 (FIG. 1) of *Wieczorek* with the expectation of minimizing a stretch between electrical leads between CMOS chip 9 and bond pad 17 on printed circuit board 15. However, Examiner Reis CAN NOT conclusively assert that an implementation of the adhesives 5 and 7 and stud bumpers 2 of *Nakajyo* between CMOS chip 9 and bond pad 17 on printed circuit board 15 of *Wieczorek* would be expected to minimize a stretch between electrical leads between CMOS chip 9 and bond pad 17 on printed circuit board 15 of *Wieczorek*. This is particularly true in view of the fact that neither *Wieczorek* nor *Nakajyo* describe an absolute minimum stretch and/or an absolute maximum stretch of the electrical leads between CMOS chip 9 and bond pad 17 on printed circuit board 15 that are conducive to reducing noise and susceptibility of interference as required by *Wieczorek*. See, *Wieczorek* at column 2, line 43-54; and column 5, lines 13-16.

Moreover, the Appellant respectfully asserts that there is no motivation or suggestion to replace adhesive layers 13 and 16 with the adhesives and spacers of *Nakajyo* in view of the facts that (1) *Wieczorek* does not denounce adhesive layers 13 and 16 as being a less than perfect technique for bonding CMOS chip 9 and printed circuit board 15 with the goal of minimizing the stretch of electrical leads between CMOS ship 9 and bond pads 17, and (2) *Nakajyo* does not

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proclaim adhesives 5 and 7 and stud bumps 2 as the best technique for bonding elements (e.g., CMOS chip 9 and printed circuit board 15) with the goal of minimizing the stretch of electrical leads between the elements.

In summary, Examiner Reis fails to provide a suggestion or a motivation to modify *Wieczorek* in view of *Nakajyo* as proposed by Examiner Reis, and *Wieczorek* teaches away from the modification of *Wieczorek* in view of *Nakajyo* as proposed by Examiner Reis. Withdrawal of the rejection of independent claims 1 and 13 under §103(a) as being unpatentable over *Wieczorek*, in view of *Nakajyo* is therefore respectfully requested.

Claims 2-4, 6-8 and 12 depend from independent claim 1. Therefore, dependent claims 2-4, 6-8 and 12 include all of the elements and limitations of independent claim 1. It is therefore respectfully submitted by the Appellant that dependent claims 2-4, 6-8 and 12 are allowable over *Wieczorek*, in view of *Nakajyo* for at least the same reason as set forth herein with respect to independent claim 1 being allowable over *Wieczorek*, in view of *Nakajyo*. Withdrawal of the rejection of dependent claims 2-4, 6-8 and 12 under U.S.C. §103(a) as being patentable over *Wieczorek*, in view of *Nakajyo* is therefore respectfully requested.

Claim 5 depends from independent claim 1. Therefore, dependent claim 5 includes all of the elements and limitations of independent claim 1. It is therefore respectfully submitted by the Appellant that dependent claim 5 is allowable over *Wieczorek*, in view of *Nakajyo* and in further view of *Doyle* for at least the same reason as set forth herein with respect to independent claim 1

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being allowable over *Wieczorek*, in view of *Nakajyo*. Withdrawal of the rejection of dependent claim 5 under U.S.C. §103(a) as being patentable over *Wieczorek*, in view of *Nakajyo* and in further view of *Doyle* is therefore respectfully requested.

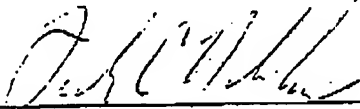
Dated: August 23, 2004

Respectfully submitted,
RULF DORSCHIED, *et al*

PHILIPS IP & STANDARDS
P.O. Box 3001
Briarcliff Manor, NY 10510-8001
Phone: (914) 333-9627
Fax: (914) 332-0615

John F. Vodopia
Registration No. 36,299
Attorney for Appellants

CARDINAL LAW GROUP
Suite 2000
1603 Orrington Avenue
Evanston, Illinois 60201
Phone: (847) 905-7111
Fax: (847) 905-7113



Frank C. Nicholas
Registration No. 33,983
Attorney for Appellant

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APPENDIX

1. A detector for a detection of electromagnetic radiation, said detector comprising:
at least one scintillator (6);
at least one CMOS chip (3), and
a ceramic basic element (4),

wherein a respective intermediate layer (2) that is defined in respect of its gap width is arranged each time between the scintillator (6) and the CMOS chip (3) and between the CMOS chip (3) and the ceramic basic element (4), and

wherein said intermediate layer (2) contains at least two adhesives (A, B) of different consistency and spacers (5).

- 2 The detector as claimed in claim 1, wherein the gap width of the intermediate layer (2) is determined by quantities of the adhesive (A) and a plurality of spacers (5).

3. The detector as claimed in the claims 1 and 2, wherein a first adhesive (A) is a fast curing epoxy resin, cyanoacrylate or acrylate adhesive.

- 4 The detector as claimed in claim 3, wherein at least some quantities of the first adhesive (A1) are applied directly to the surfaces of the CMOS chip (3) and the ceramic basic element (4) and that a plurality of spacers (5) is arranged between the surfaces of the CMOS chip (3) and the ceramic basic element (4).

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5. The detector as claimed in claim 4, wherein each spacer (5) is a wire that consists notably of the materials Au and AlSi.
6. The detector as claimed in claim 3, wherein at least some quantities of a second adhesive (A2) are applied to the surface of the scintillator (6) that faces the CMOS chip as well as to a plurality of bumps that are present on the CMOS chip (3).
7. The detector as claimed in claim 1, wherein a first adhesive (B) is a low-viscosity adhesive, notably on an epoxy resin basis.
8. The detector as claimed in claim 1, wherein the ceramic basic element (4) is based on aluminum oxide.
12. An X-ray examination apparatus that includes at least one detector as claimed in one of the claims 1 to 8.

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13. A detector for detecting electromagnetic radiation, said detector comprising:
- a ceramic basic element (4);
 - a CMOS chip (3); and
 - a first intermediate layer (2) between said ceramic basis element (4) and said CMOS chip (3), said first intermediate layer (2) including
 - a first spacer (5) in contact with said ceramic basic element (4) and said CMOS chip (3),
 - a first adhesive (A1) adhered to said ceramic basic element (4) and said CMOS chip (3), and
 - a second adhesive (B) adhered to said ceramic basic element (4) and said CMOS chip (3).
14. The detector of claim 13,
- wherein said second adhesive (B) is between and adhered to said first spacer (5) and said first adhesive (A1)

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- 15 The detector for detecting electromagnetic radiation of claim 13, further comprising:
a scintillator (6); and
a second intermediate layer between said CMOS chip (3) and said scintillator (6), said
second intermediate layer including
a second spacer (5) in contact with said CMOS chip (3),
a third adhesive (A2) adhered to said second spacer (5) and said scintillator (6),
and
a fourth adhesive (B) adhered to said CMOS chip (3), said scintillator (6), said
second spacer (5) and said third adhesive (A2).
16. The detector of claim 15,
wherein said second intermediate layer further includes a third spacer (5) in contact with
said CMOS chip (3), and
wherein said fourth adhesive (B) is between and adhered to said scintillator (6) and said
third spacer (5).